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10/562,276	12/22/2005	David A. Fish	GB030102	6568
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EXAMINER				
PIZIALI, JEFFREY J				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/562,276

Applicant(s)

FISH ET AL.

Examiner

Jeff Piziali

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 December 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 December 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-85/86)
Paper No(s)/Mail Date 12/22/05 & 4/12/07.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
- 5) ☐ Notice of Inventor's Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: "*V_{LED}*" (see Fig. 5). Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

3. The figures have not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the drawings.

Specification

4. The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1-29 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

7. Claim 1 recites the limitations: "*the pixel drive signals*" (in line 1); "*the pixels*" (in line 2); "*the pixel current-brightness characteristics*" (in line 8); "*the voltage on the respective row conductor*" (in line 10); "*the currents drawn from the row conductor*" (in line 11); "*the dependency*" (in line 12); "*the pixel brightness characteristics*" (in line 12); "*the voltage on the row conductor at the pixel*" (in line 13); and "*the modified target pixel drive currents*" (in line 14). There is insufficient antecedent basis for these limitations in the claim.

8. Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01.

An omitted structural cooperative relationship results from the claimed subject matter: "**rows**" (in line 3) and "**a respective row conductor**" (in line 5). It would be unclear to one having ordinary skill in the art whether the "**respective row conductor**" forms one of the earlier claimed "**rows**"; or rather whether the "**respective row conductor**" forms a distinct and independent "**row**" compared to the earlier claimed "**rows**".

An omitted structural cooperative relationship results from the claimed subject matter: "**current**" (in line 4); "**target pixel drive currents**" (in line 9); "**the pixel current-brightness characteristics**" (in line 8); "**the currents drawn from the row conductor**" (in line 11); and "**the modified target pixel drive currents**" (in line 14). It would be unclear to one having ordinary skill in the art what the relationship is between all the above "**current**" limitations. Are all the "**current**" limitations referring to distinct and independent "**currents**"? Or is a single, identical current (or single set of currents) being referred to throughout the claim?

An omitted structural cooperative relationship results from the claimed subject matter: "**the pixel current-brightness characteristics**" (in line 8) and "**the pixel brightness characteristics**" (in line 12). It would be unclear to one having ordinary skill in the art whether these limitations refer to the same "**characteristics**"; or rather whether each limitation refers to distinct and independent "**characteristics**".

An omitted structural cooperative relationship results from the claimed subject matter: "**the voltage on the respective row conductor (26) at each pixel**" (in line 10) and "**the voltage on**

the row conductor at the pixel" (in line 13). It would be unclear to one having ordinary skill in the art what the relationship is between all the above "*voltage*" limitations. Is there a single, identical "*voltage*" being claimed; or rather does each pixel see distinct and independent "*voltages*"?

9. Claims 2-15 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01.

An omitted structural cooperative relationship results from the claimed subject matter: "*a method*" (in line 1 of each dependent claim). It would be unclear to one having ordinary skill in the art at the time of invention whether the "*method*" in each dependent claim is identical to the "*method*" (in claim 1, line 1); or rather whether the "*method*" in each dependent claim is distinct from the "*method*" of the base claim(s).

10. Claim 2 recites the limitation "*the current drawn by the pixels between the first and second phases*" (in line 4). There is insufficient antecedent basis for this limitation in the claim.

11. Claim 3 recites the limitation "*the currents drawn by the pixels in a row and the voltages on the row conductor at the locations of the pixels*" (in line 5). There is insufficient antecedent basis for this limitation in the claim.

12. Regarding claim 4, the ellipsis type punctuation marks "..." in the matrix (e.g., see line 5) renders the claim indefinite because the claim includes elements not actually disclosed (those encompassed by "..."), thereby rendering the scope of the claim unascertainable. See MPEP § 2173.

13. Claim 5 recites the limitation "***the voltage-current characteristics of the drive transistor***" (in line 6). There is insufficient antecedent basis for this limitation in the claim.

14. Claim 6 recites the limitation "***the resistance***" (in line 3). There is insufficient antecedent basis for this limitation in the claim.

15. Claim 7 recites the limitation "***the slope of the drain-source current vs. drain-source voltage curve of the drive transistor***" (in line 5). There is insufficient antecedent basis for this limitation in the claim.

16. Claim 8 recites the limitation "***the value of the first pixel drive current***" (in line 5). There is insufficient antecedent basis for this limitation in the claim.

17. Claim 9 recites the limitation "***n***" (in line 5). There is insufficient antecedent basis for this limitation in the claim.

18. Claim 10 recites the limitation "*the total number of pixels in the row*" (in line 4). There is insufficient antecedent basis for this limitation in the claim.

19. Claim 11 recites the limitation "*the values representing the dependency of the pixel brightness characteristics on the voltage on the row conductor used for scaling*" (in line 2). There is insufficient antecedent basis for this limitation in the claim.

20. Claim 12 recites the limitation "*the values for a range of current values*" (in line 2). There is insufficient antecedent basis for this limitation in the claim.

21. Claim 13 recites the limitation "*the values of the look up table*" (in line 2). There is insufficient antecedent basis for this limitation in the claim.

22. Claim 14 recites the limitation "*the characteristics of pixel compensation modules*" (in line 3). There is insufficient antecedent basis for this limitation in the claim.

23. Claim 15 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01.

An omitted structural cooperative relationship results from the claimed subject matter: "*rows and columns*" (in line 2). It would be unclear to one having ordinary skill in the art at the time of invention whether the "*rows and columns*" (in claim 15) are identical to the "*rows and*

columns" (in claim 1); or rather whether "*rows and columns*" (in claim 15) are distinct and independent from the "*rows and columns*" (in claim 1).

24. Claim 16 recites the limitations: "*the target pixel drive currents*" (in line 4); "*the voltage*" (in line 5); "*the respective row conductor*" (in line 5); "*each pixel*" (in line 6); "*the currents drawn from the row conductor*" (in line 6); "*the plurality of pixels*" (in line 7); "*the dependency*" (in line 7); "*the pixel brightness characteristics*" (in line 8); "*the voltage on the row conductor*" (in line 8); "*the pixel*" (in line 9); "*the target pixel drive currents*" (in line 11); "*the relationship*" (in line 12); "*the currents drawn*" (in line 12); "*the pixels in a row*" (in line 12); "*the voltages on the row conductor*" (in line 13); "*the locations of the pixels*" (in line 13); "*the resulting values*" (in line 14); "*the dependency*" (in line 15). There is insufficient antecedent basis for these limitations in the claim.

25. Claim 16 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01.

An omitted structural cooperative relationship results from the claimed subject matter: "*rows*" (in line 3); "*the respective row conductor*" (in line 5); "*a row*" (in line 12). It would be unclear to one having ordinary skill in the art whether the "*respective row conductor*" forms one of the earlier claimed "*rows*"; or rather whether the "*respective row conductor*" forms a distinct and independent "*row*" compared to the earlier claimed "*rows*". Additionally, it would be unclear whether "*a row*" forms one of the earlier claimed "*rows*"; or rather whether "*a row*" forms a

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distinct and independent "**row**" relative to the earlier claimed "**rows**" and/or "*the respective row conductor*".

An omitted structural cooperative relationship results from the claimed subject matter: "*current-addressed light emitting display elements*" (in line 2); "*the target pixel drive currents*" (in line 4); "*the currents drawn from the row conductor*" (in line 6); "*the currents drawn by the pixels in a row*" (in line 12). It would be unclear to one having ordinary skill in the art what the relationship is between all the above "**current**" limitations. Are all the "**current**" limitations referring to distinct and independent "**currents**"? Or is a single, identical current (or single set of currents) being referred to throughout the claim?

An omitted structural cooperative relationship results from the claimed subject matter: "*the pixel brightness characteristics on the voltage on the row conductor at the pixel*" (in line 8) and "*the pixel brightness characteristics on the voltage on the row conductor*" (in line 15). It would be unclear to one having ordinary skill in the art whether these limitations refer to the same "**characteristics**"; or rather whether each limitation refers to distinct and independent "**characteristics**".

An omitted structural cooperative relationship results from the claimed subject matter: "*the voltage on the respective row conductor (26) at each pixel*" (in line 5); "*the voltage on the row conductor at the pixel*" (in line 8); "*the voltages on the row conductor at the locations of the pixels*" (in line 13); and "*the voltage on the row conductor*" (in line 16). It would be unclear to one having ordinary skill in the art what the relationship is between all the above "**voltage**" limitations. Is there a single, identical "**voltage**" being claimed; or rather does each pixel see distinct and independent "**voltages**"?

26. Claims 17-26 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01.

An omitted structural cooperative relationship results from the claimed subject matter: "*a device*" (in line 1 of each dependent claim). It would be unclear to one having ordinary skill in the art at the time of invention whether the "*device*" in each dependent claim is identical to the "*device*" (in claim 16, line 1); or rather whether the "*device*" in each dependent claim is distinct from the "*device*" of the base claim(s).

27. Regarding claim 17, the ellipsis type punctuation marks "..." in the matrix (e.g., see line 5) renders the claim indefinite because the claim includes elements not actually disclosed (those encompassed by "..."), thereby rendering the scope of the claim unascertainable. See MPEP § 2173.

28. Claim 18 recites the limitation "*the voltage-current characteristics of the drive transistor*" (in line 6). There is insufficient antecedent basis for this limitation in the claim.

29. Claim 19 recites the limitation "*the light emitting display element (2) of each pixel*" (in line 2). There is insufficient antecedent basis for this limitation in the claim.

30. Claim 20 recites the limitation "***the voltage scaling***" (in line 1). There is insufficient antecedent basis for this limitation in the claim.

31. Claim 21 recites the limitation "***the resistance***" (in line 3). There is insufficient antecedent basis for this limitation in the claim.

32. Claim 22 recites the limitation "***the slope of the drain-source current vs. drain-source voltage curve of the drive transistor***" (in line 5). There is insufficient antecedent basis for this limitation in the claim.

33. Claim 23 recites the limitation "***n***" (in line 5). There is insufficient antecedent basis for this limitation in the claim.

34. Claim 24 recites the limitation "***the total number of pixels in the row***" (in line 4). There is insufficient antecedent basis for this limitation in the claim.

35. Claim 26 recites the limitation "***the values of the look up table***" (in line 2). There is insufficient antecedent basis for this limitation in the claim.

36. Claim 27 recites the limitations: "***the relationship***" (in line 8); "***the currents drawn***" (in line 8); "***the pixels***" (in line 9); "***the voltages***" (in line 9); "***the row conductor***" (in line 9); "***the locations of the pixels***" (in line 9); "***the resulting values***" (in line 10); "***the dependency***" (in line

11); *"the pixel brightness characteristics"* (in line 11); *"the voltage on the row conductor"* (in line 12); *"the voltage on the respective row conductor at each pixel"* (in line 13); *"the currents drawn from the row conductor by the plurality of pixels"* (in line 14); *"the dependency of the pixel brightness characteristics"* (in line 15); and *"the voltage on the row conductor at the pixel"* (in line 16). There is insufficient antecedent basis for these limitations in the claim.

37. Claim 27 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01.

An omitted structural cooperative relationship results from the claimed subject matter: *"rows"* (in line 4); and *"a row"* (in line 8). It would be unclear whether *"a row"* forms one of the earlier claimed *"rows"*; or rather whether *"a row"* forms a distinct and independent *"row"* relative to the earlier claimed *"rows"*.

An omitted structural cooperative relationship results from the claimed subject matter: *"target pixel drive currents"* (in line 1); *"current-addressed light emitting display elements"* (in line 3); *"the currents drawn by the pixels in a row"* (in line 8); *"the currents drawn from the row conductor by the plurality of pixels"* (in line 14). It would be unclear to one having ordinary skill in the art what the relationship is between all the above *"current"* limitations. Are all the *"current"* limitations referring to distinct and independent *"currents"*? Or is a single, identical current (or single set of currents) being referred to throughout the claim?

An omitted structural cooperative relationship results from the claimed subject matter: *"the pixel brightness characteristics on the voltage on the row conductor"* (in line 11) and *"the*

pixel brightness characteristics on the voltage on the row conductor at the pixel" (in line 15). It would be unclear to one having ordinary skill in the art whether these limitations refer to the same "*characteristics*"; or rather whether each limitation refers to distinct and independent "*characteristics*".

An omitted structural cooperative relationship results from the claimed subject matter: "*the voltages on the row conductor at the locations of the pixels*" (in line 9); "*the voltage on the row conductor*" (in line 12); "*the voltage on the respective row conductor at each pixel*" (in line 13); and "*the voltage on the row conductor at the pixel*" (in line 16). It would be unclear to one having ordinary skill in the art what the relationship is between all the above "*voltage*" limitations. Is there a single, identical "*voltage*" being claimed; or rather does each pixel see distinct and independent "*voltages*"?

38. Claims 28-29 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01.

An omitted structural cooperative relationship results from the claimed subject matter: "*compensation circuitry*" (in line 1 of each dependent claim). It would be unclear to one having ordinary skill in the art at the time of invention whether the "*compensation circuitry*" in each dependent claim is identical to the "*compensation circuitry*" (in claim 27, line 1); or rather whether the "*compensation circuitry*" in each dependent claim is distinct from the "*compensation circuitry*" of the base claim(s).

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39. Regarding claim 28, the ellipsis type punctuation marks "... " in the matrix (e.g., see line 5) renders the claim indefinite because the claim includes elements not actually disclosed (those encompassed by "... "), thereby rendering the scope of the claim unascertainable. See MPEP § 2173.

Conclusion

40. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The documents listed on the attached '*Notice of References Cited*' are cited to further evidence the state of the art pertaining to determining pixel drive signals.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeff Piziali whose telephone number is (571) 272-7678. The examiner can normally be reached on Monday - Friday (6:30AM - 3PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on (571) 272-7681. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jeff Piziali/
Primary Examiner, Art Unit 2629
25 April 2008